ART. XI.—*A New Modification of the Ophthalmoscope.* By ED. G. LORING, M.D., of New York.

SINCE the introduction of the ophthalmoscope which I presented at the American Ophthalmological Society in 1869, various modifications of the instrument have been made, which it appears to me have added but little, if anything, to its general usefulness, or tended to fulfil in any greater degree the objects of the original, which were to facilitate examinations by the upright image, and to expedite the determination of errors in refraction; while, moreover, the coarseness with which these instruments have been made abroad has gone far towards defeating the very purposes for which they were intended.

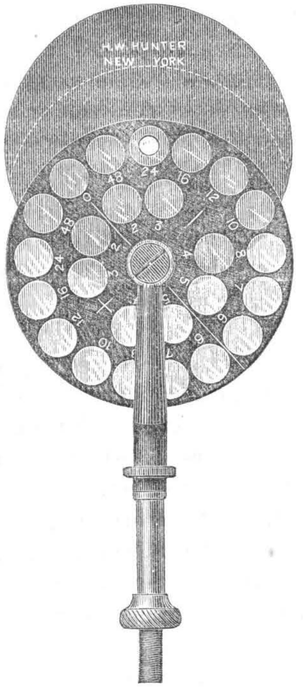
At the meeting of the American Ophthalmological Society for this year, Dr. Knapp presented a very ingenious and beautifully made modification of the Rekoss system, which consists of two stationary but revolving disks, one of which contains concave, the other convex glasses. These are superimposed in such a manner that they rotate past each other, so that the focal value of each glass can be lessened to a greater or less degree (but not increased) by adding to it the various neutralizing glasses of the other disk. As there are 12 glasses in each disk, the focal value between the glasses is in itself small, but this can be made much smaller by the use of the other disk. But the presence of these two stationary disks necessitates (unless indeed one is on each occasion turned to zero) an elaborate calculation before the real focal value of the combination before the observer's eye can be determined. And this calculation in case of all the weaker numbers, and even of the moderately strong ones, can only be carried out even by an adept on paper, or by a prepared table, and the result when obtained gives a focal interval of so small a degree as in most cases to be entirely inappreciable even to the most proficient expert. In order to use any of the commoner occurring numbers without going into this calculation, one disk must be always turned to zero, while the required number is sought by revolving the other. Dr. Knapp's instrument, like that of Wecker's, has the advantage of being complete in itself and free from the disadvantage of having detached cylinders.

To obtain this advantage, and at the same time to keep the primitive simplicity of my old instrument, the detachable cylinders have, in the modification which I now present, been replaced by a single stationary disk which is only one and a half inches in diameter, and in which the glasses are arranged in two concentric circles. The manner in which the glasses are arranged will be seen from the figure. The disk contains 25 perforations, forming in the aggregate the following series:—

Convex, O. $\frac{1}{48}$, $\frac{1}{24}$, $\frac{1}{16}$, $\frac{1}{12}$, $\frac{1}{10}$, $\frac{1}{8}$, $\frac{1}{7}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$.
Concave, $\frac{1}{48}$, $\frac{1}{24}$, $\frac{1}{16}$, $\frac{1}{12}$, $\frac{1}{10}$, $\frac{1}{8}$, $\frac{1}{7}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$.

The intervals between the focal lengths of these glasses are small enough to fulfil every requirement in ophthalmoscopy, without the perplexing resort of adding and subtracting vulgar fractions with comparatively high

Fig. 1



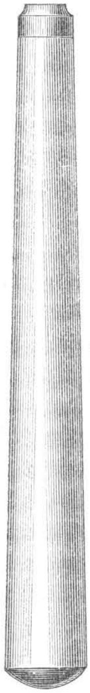
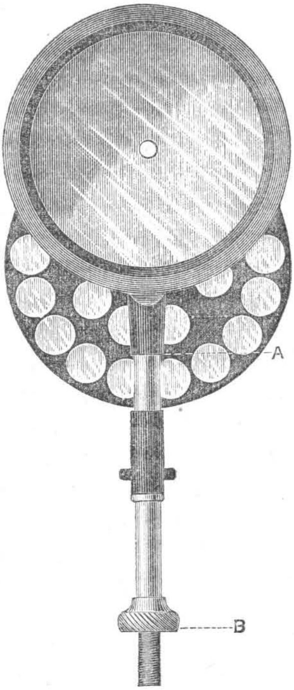


Fig. 2



denominators. If required, however, it is very easy to vary the focal interval in all the stronger, and in many of the moderately strong glasses, that is, from $\frac{1}{2}$ to $\frac{1}{10}$. This is done by the observer simply withdrawing his head half an inch from the ordinary place of examination. If, for example, it is found that in the usual place $-\frac{1}{2}$ in a given case is too strong, the head has only to be withdrawn one-half inch, and the glass has then the effect of $\frac{2}{2\frac{1}{2}}$. With $\frac{1}{3}$ it becomes $\frac{1}{3\frac{1}{2}}$, and so on through the series. So, too, with the convex glasses; only here the glass increases in strength as we withdraw the head. Thus if we find that $+\frac{1}{3}$ is not quite strong enough in a given case, we have only to withdraw our head half an inch and the glass has the same effect as $\frac{1}{2\frac{1}{2}}$ would have had if the head had not been moved. Thus, with little or no inconvenience a large number of additional focal values, with small intervals of refraction, can be obtained. The disk is divided perpendicularly into two equal parts, one of which contains the convex, the other the concave. In each half the weaker and more comlasses are set in the outer semicircle, while the stronger inner one.

outer or inner circle can be rapidly brought into position by simply sliding the disk upwards or downwards on the handle by means of the thumb of the hand which holds the instrument, and this can be done if desirable without removing it from the eye. By this simple contrivance all the necessary glasses are contained in a single stationary but revolving disk, and they can be brought into position with the least possible delay or inconvenience. In order to clean the glasses, which need only be done very occasionally, it is only necessary to unscrew the handle near the mirror, and the disk can then be readily slipped off the handle and both surfaces of the glasses thus exposed.

One hole (O) is left vacant to represent emmetropia, and for the examination of the inverted image without an eye-piece. Should, however, the latter be desired, the observer has a large collection at his disposal. The strong numbers of each set are designed for the determination of the highest degrees of the errors of refraction, and for the measurement of the inequalities of the fundus, such as elevations and excavations of the optic nerve, projections of tumours, retinal detachments, membranes in the vitreous, etc. ; with the stronger convex glasses, such as $\frac{1}{2}$, opacities of the cornea and lens can be viewed under considerable enlargement.

Great care was taken to have the mirror, which is concave, 7″ focal distance, ground exceedingly thin, thus rendering the image perfectly distinct, and, I think, unusually brilliant. The mirror, being contained in a separate cell, is made detachable, so that a weak light mirror can be substituted, or the instrument be used, when the mirror is removed, as an optometer, the patient himself revolving the disk till a suitable glass is obtained.

While every effort has been made to make the parts necessary for optical purposes as delicate as possible, the instrument itself has been purposely made sufficiently strong to withstand even more than ordinary wear and tear. I would take this opportunity of informing those who are desirous of obtaining the instrument, that it can be had of the maker, H. W. Hunter, 1132 Broadway, New York. The price of the instrument is $30.

ART. XII.—*Poisoning by Rhus Toxicodendron.* By WM. H. DE WITT, M.D., Assistant Physician to the Longview Asylum for Insane, Cincinnati, Ohio.

I HAVE recently had under observation two cases presenting many of the symptoms of poisoning by the Rhus Toxicodendron. They occurred